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**APPLICATION NUMBER: 60/561,351**

**FILING DATE: *April 12, 2004***

**RELATED PCT APPLICATION NUMBER: *PCT/US05/02227***



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60/561351

041204

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<input checked="" type="checkbox"/> Additional inventors are being named on the _____ separately numbered sheets attached hereto					
TITLE OF THE INVENTION (280 characters max)					
DIFFERENTIAL CODING WITH EXP-GOLOMB METHOD FOR CODING Q-MATRIX					
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ENCLOSED APPLICATION PARTS (check all that apply)					
<input checked="" type="checkbox"/> Specification		Number of Pages		2	
<input checked="" type="checkbox"/> Drawing(s)		Number of Sheets		1	
<input type="checkbox"/> Application Data Sheet. See 37 CFR 1.76		<input type="checkbox"/> CD(s), Number			
		<input checked="" type="checkbox"/> Other (specify)		Attachment - pages 1-4 Attachment - pages 1-94	
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The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.					
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Respectfully submitted,

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REGISTRATION NO.

25,124

(if appropriate)

Docket Number:

17366-3350

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# PROVISIONAL APPLICATION COVER SHEET

## Additional Page

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Applicant(s):

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17366-3350

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Invention:

**DIFFERENTIAL CODING WITH EXP-GOLOMB METHOD FOR CODING Q-MATRIX**I hereby certify that this **Provisional Application for Patent Cover Sheet***(Identify type of correspondence)*

is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 in an envelope addressed to: Director of the United States Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450 on

April 12, 2004*(Date)*Marc Fregoso*(Typed or Printed Name of Person Mailing Correspondence)*Marc Fregoso*(Signature of Person Mailing Correspondence)*EV 336024510 US*("Express Mail" Mailing Label Number)***Note: Each paper must have its own certificate of mailing.**

**DIFFERENTIAL CODING WITH EXP-GOLOMB  
METHOD FOR CODING Q-MATRIX**

**BACKGROUND OF THE INVENTION**

**Field of the Invention**

The present invention is directed to enabling quantization of matrices to be carried out and represented in a video coding system that contains intra-prediction and more particularly creating a series of cyclic difference values suitable for signed Exp-Golomb codes.

**DESCRIPTION OF RELATED ART**

The prior art is aware of quantization matrix for video coding and the applicability of Exp-Golomb codes. Video code has also been represented in hierarchical syntactic structure with associated semantics and has used both lossy and non-lossy or Variable Length Coding in video compression. Transform domain quantization has also been known and used.

**SUMMARY OF THE INVENTION**

The present invention describes a method and program for representing, carrying and enabling video compression by using quantization weighting matrices and addresses the following features:

1. Enable quantization matrices to be carried and represented in a video coding system that contains intra-prediction.
2. Define and carry quantization weighting matrices that can be implemented by integer based and division free computation.
3. Enable quantization matrices to be encoded in an efficient Cyclic Differential code and Exp-Golomb code.
4. Support quantization matrix representation that allows redundant weighting values to be derived at decoder side rather than being carried over communication transport data.

**BRIEF DESCRIPTION OF THE DRAWINGS**

Figure 1 shows an example mapping of two-dimensional matrix entries into a one-dimensional series according to an embodiment of the present invention.

**BRIEF DESCRIPTION OF PREFERRED EMBODIMENT**

See attached pages 1-4.